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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,680	09/22/2000	Sik Heng Foo	85773-229	9706

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 CANADA

EXAMINER

TRAN, DZUNG D

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 07/31/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 09/667,680	Applicant(s) FOO, SIK HENG	
	Examiner Dzung D Tran	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 22 September 2000.
- 2a)  This action is FINAL.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-40 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12)  The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
    1.  Certified copies of the priority documents have been received.  
    2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
    3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
    \* See the attached detailed Office action for a list of the certified copies not received.
- 14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
    a)  The translation of the foreign language provisional application has been received.
- 15)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other:  |

**DETAILED ACTION**

**Specification**

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 9 recite the limitation "the figure of merit" in lines 1-2 of claims.

There is insufficient antecedent basis for this limitation in the claims.

Claim 1 claimed "a channel specific figure of merit" and "a site specific figure of merit". However, claims 8 and 9 claimed "the figure of merit". It is unclear which "figure of merit" that claims 8 and 9 refer to.

**Claim Rejections - 35 USC § 102**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 7, 9-12, 15-18, 21, 22, 25-29 and 36 are rejected under 35

U.S.C. 102(e) as being anticipated by Khaleghi et al. U.S. patent no. 6,040,933.

Regarding claims 1 and 36, Khaleghi discloses a method of equalizing channels of WDM optical network, wherein each channel travels through the network from one of

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the site, call an "add" site for that channel (figure 3, elements Tx1, Tx2... Tx5), to another one of the sites, called a "drop" site for that channel (figure 3, elements Rx1, Rx2.. Rx5), comprising:

determining a bit error rate (BER) (channel specific figure of merit as claimed) for each channel (column 4, lines 23-30),

determining a OSNR (site specific figure of merit as claimed) for all channels at the receiving sites (same as drop site of claimed) (column 4, line 15 to column 5, line 43),

adjusting a transmit power of each channel as a function of BER of that channel and as a function of OSNR for that receiving site (same as drop site of claimed) (column 2, lines 29-39, column 4, lines 28-55, column 6, lines 8-10).

Regarding claims 2, 10, 17-18, 22 and 26-29, Khaleghi further discloses each channel occupies a distinct wavelength (column 3, lines 57-61).

Regarding claims 3, 4, 11 and 12, Khaleghi further discloses function is the arithmetic and average function (column 4, lines 50-55, EQ. 1).

Regarding claims 7, 15, 21 and 25, Khaleghi further discloses adjusting (increasing or decreasing) the transmit power at the transmitters site (same as add site of claimed) (column 2, lines 29-67).

Regarding claim 9, Khaleghi further discloses the bit error rate (BER) (column 4, lines 23-30).

Regarding claim 16, Khaleghi further discloses the optical signal to noise ratio (OSNR) (column 4, lines 14-15, 26, 34, 48, 59).

3. Claims 1-4, 7, 9-12, 15-18, 21, 22, 25-29 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhou et al. U.S. patent no. 6,400,479.

Regarding claims 1 and 36, Zhou discloses a method of equalizing channels of WDM optical network, wherein each channel travels through the network from one of the site, call an "add" site for that channel (figure 1, elements 14, 10-1, Node-1), to another one of the sites, called a "drop" site for that channel (figure 1, elements 18, 10-3, Node-3), comprising:

determining a bit error rate (BER) (channel specific figure of merit as claimed) for each channel (column 3, line 66 to column 4, line 3),

determining a OSNR (site specific figure of merit as claimed) for all channels at the receiving sites (same as drop site of claimed) (abstract, column 4, lines 6-10, column 5, line 53, column 6, lines 31-32),

adjusting a transmit power of each channel as a function of BER of that channel and as a function of OSNR for that receiving site (same as drop site of claimed) (abstract, column 5, lines 53-62).

Regarding claims 2, 10, 17-18, 22 and 26-29, Zhou further discloses each channel occupies a distinct wavelength (column 4, lines 13-21).

Regarding claims 3, 4, 11 and 12, Zhou further discloses function is the arithmetic and average function (column 6, lines 6-18).

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Regarding claims 7, 15, 21 and 25, Zhou further discloses adjusting (increasing or decreasing) the transmit power at the transmitters site (same as add site of claimed) (figure 1, element 28, column 4, lines 6-8).

Regarding claim 9, Zhou further discloses the bit error rate (BER) (column 3, line 67, column 4, line 20).

Regarding claim 16, Zhou further discloses the optical signal to noise ratio (OSNR) (column 4, lines 3, 18-19, 26, 38).

### **Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5, 6, 8, 13-14, 19-20, 23-24, 30-32, 35, and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khaleghi et al. U.S. patent no. 6,040,933 in view of Li et al U.S. 2003/0053163.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

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the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claims 5, 13, 19, 23, 30 and 39, as per claims above, Khaleghi discloses all the limitations except for determining the maximum and minimum wavelength specific figures of merit and determine a site specific figure of merit for each site that is a drop site for at least one channel is performed only if the difference between the maximum and minimum wavelength specific figures of merit is greater than a threshold. Li discloses the method for determining OSNR min and OSNR max and compare the difference between the maximum and minimum OSNR with a threshold (figure 4A, step 120, 125, 135, page 6). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the teaching of Li in the system of Khaleghi. One of ordinary skill in the art would have been motivated to do

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this in order to provide a less expensive and more flexible method for equalizing channels at a chosen location in a WDM system that is capable of equalizing performance in more complex networks such as those having an add/drop multiplexer.

Regarding claims 6, 14, 20, 24 and 32-35, Li further discloses the method for adjusting the input power of all transmitters (page 6).

Regarding claim 8, Q (or quality factor) is a well known transmission characteristic in the art (i.e Q factor, BER, OSNR). Therefore, it would have been obvious to a person of ordinary skill in the art to use the Q factor as a parameter for the evaluation of the characteristic of an optical fiber system and for channel performing the equalization in the WDM system.

Regarding claim 31, Li further discloses a variable optical attenuator (figure 2A, element 17, page 3).

Regarding claims 37, 38 and 40, Li further discloses a network manager (figures 3B, 3C, page 5) for controlling and equalizing the optical power.

### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - a. Andreozzi et al. U.S. patent no. 6,134,036. Add/Drop multiplexer node.
  - b. Barnard et al. U.S. patent no. 6,115,157. Method for equalizing WDM system.
  - c. Terahara U.S. patent no. 6,271,945. Apparatus and method for controlling power levels of individual signal lights of a WDM signal light.




7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (703) 305-0932.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jason Chan, can be reached on (703) 305-4729.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



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